3.3.4.7 Great Lakes Alkaline Rockshore

3.3.4.7.1 Community Overview

Great Lakes alkaline rockshore is a community that develops on creviced, wave-splashed, horizontal or gently sloping exposures of dolomite bedrock that dip toward Lake Michigan. These occur only along the Lake Michigan shoreline of the northern Door Peninsula, and on the margins of some of the Grand Traverse Islands, to the north. This is the same bedrock that forms the Niagara Escarpment which forms prominent cliffs on the west side of the Peninsula. The extent of the exposed rock is dependent on Lake Michigan water levels; large expanses of this habitat may be either inundated or exposed during a given year. Characteristic members of this community include the shrubs ninebark and shrubby cinquefoil, and the herbs silverweed, Arctic primrose, grass-leaved goldenrod, brook lobelia, gentians (*Gentiana* spp., *Gentianopsis* spp.), grasses-of-Parnassus, Indian paint-brush, low calamint, and many sedges and rushes. Plants endemic to the Great Lakes shores are significant components of some stands.

Because this community type is geographically restricted to those portions of the Lake Michigan coast with dolomite shoreline, it is, and has always been, rare here. Just inland of the exposed dolomite pavement there is often a narrow zone of rank herbs and tall shrubs, sometimes occupying a ridge of cobbles, gravel, or a low ledge. On the more stable habitats beyond this zone of herbs and shrubs, a very distinctive forest sometimes develops. Mature stands are usually composed of mixtures of northern white cedar, white spruce, balsam fir, eastern white pine, and paper birch.

3.3.4.7.2 Vertebrate Species of Greatest Conservation Need Associated with Great Lakes Alkaline Rockshore

There were not any vertebrate Species of Greatest Conservation Need that were identified as moderately or significantly associated with Great Lakes alkaline rockshore.

3.3.4.7.3 Threats and Priority Conservation Actions for Great Lakes Alkaline Rockshore

All known occurrences of Great Lakes alkaline rockshore are in the Northern Lake Michigan Coastal Ecological Landscape. As a result, the Northern Lake Michigan Coastal Ecological Landscape represents a major opportunity for protection, management, and/or restoration of Great Lakes alkaline rockshore.

Off the northern tip of the Door Peninsula, some of the Grand Traverse Islands feature alkaline rockshore, and serve as important stops for migratory shorebirds. On the Door County mainland, Newport Beach State Park protects an extensive strip of this habitat, with splash pools and crevices providing microsites for rare plant species.

The following list of threats and priority conservation actions were identified for Great Lakes alkaline rockshore in Wisconsin.

Threats and Issues

- This community is adapted to a wide range of normal lake level fluctuations. Both the highs and lows in the water level cycles are necessary if the plants that occupy the exposed dolomite flats are to persist over time.
- Residential development pressure is increasing, and shoreline areas with a lake view are especially vulnerable. Lakeshore development is often accompanied by activities that can destroy elements of the plant community or habitat.
- Examples occur in areas that receive heavy recreational use, where physical damage to the surface vegetation can occur due to vehicles and heavy foot travel.

- Road construction and quarrying can destroy the bedrock shelves and crevices that retain soil, water and nutrients that support the unique vegetation and provide habitat for animals.
- The impacts of invasive species are unknown, but warrant investigation in regard to rare plant and invertebrate species.

Priority Conservation Actions

- Preservation of the natural variability of Lake Michigan's hydrologic cycles is a key to maintaining this community type. As of late 2004, the outlet of Lake Michigan (actually the Lake Huron outlet, where the combined waters of Lakes Michigan and Huron enter the St. Clair River near Detroit) has been in a long cycle of down-cutting, which has lowered the mean lake elevation by approximately one foot. Discussion is underway among various units of government regarding a long-term solution to this situation.
- Protection should be encouraged, especially on privately owned sites.
- Local zoning or the use of conservation easements may be effective ways to prevent incompatible activities.
- At the site level, protection should extend to the vegetative communities adjoining the shorelines.
- Effective conservation plans must account for the dynamic nature of Great Lakes ecosystems, over single seasons, decades, and centuries.
- Inform managers of public lands that contain this community of its significance, and share management information, particularly with respect to threats.
- Surveys should focus on documentation of ecological values of these unusual habitats, especially to plants and invertebrates, and perhaps to migratory birds. The non-vascular plants, especially, are in need of further study.